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United States Patent and Trademark Office
Washington, D.C. 20231

Subject: Reply to Office Action mailed on 15 Nov 2007

Dear Sir/Madam,

Thank you for the detailed consideration of the presented invention. Though most part of the office action are agreed, but the merits of claim 12 are insisted to be remained, while claim 13 through 25 are agreed to be withdrawn from further consideration.

In the middle part of page 16 under "Detailed Description of the Invention", it has stated that "Sensors (not shown) such as that described in Fig. 39 may be built into the device to detect the positions of slide switches 403 and 404, thereby producing positional information along 2 dimensions." This has described one sensing technique that can be employed in the presented invention. Said sensing technique is described as position sensor 303 in Fig. 39, and explained in page 14 also under "Detailed Description of the Invention". Moreover, in Fig. 48 through Fig. 52, optical sensors are shown that could also be employed for embodiment 401 in Fig. 53. However, this is not mentioned in the description for Fig. 53.

The wire 417 shown in Fig. 56 demonstrates that physical wire may be connected from said member 405 through opening 412 along cavity 416 to opening 414 and then to said base 402, thereby enabling sensors requiring wire to be housed on said member 405.

Fig. 56 is intended to show that while moving said member 405 along said direction 406, only the portion of said wire 417 to the left of opening 414 shown in Fig. 56 will be dragged, while the portion of said wire 417 to the right of opening 414 shown in Fig. 56 will be kept stationary. Conversely, when said member 403 is moved along said

direction 407, only the portion of said wire 417 to the right of opening 414 shown in Fig. 56 will be dragged, while the portion of said wire 417 to the left of opening 414 shown in Fig. 56 will be kept stationary.

This arrangement of said wire 417 is to show that wire can be laid in such a way not to obstruct the movement of said members 405 and 403. And this arrangement solves a requisite for using sensors that require wiring.

Though Fig.56 shows only a single wire, it's expected that multiple wires may be connected in the same way. Moreover, a single wire would be able to transmit multiple signals using serial encoding technique.

The sensing and wiring concerns would not limit one skilled with the art to deploy the presented invention. In the markets there are already many techniques that require no wiring between the moving part and a stationary part. For example, sensors using magnetic, optical or sonic sensing technology, can measure the distance of an object, without the need to connect wire to the object. Those readily available techniques would enable one skilled with the art to make use of the presented invention.

In Soma's patent, said member 52 can be pressed similar to pressing the button on a conventional computer mouse. However, said member 52 is not intended to function as a modification means as described in the presented invention. In the presented invention, a modification means is an innovative measure to enable an x-y position encoder to be operated practically.

Instead, Soma's patent has a mechanism that senses members 23 and 24 reaching the end of movement and then automatically repositions members 23 and 24 to the center location. This requires the operator to release member 52, as well as the operator needs to move his/her fingers to grasp member 52 in order to continue to operate. This is entirely different from the presented invention. In the presented invention, there is no need for the operator to release said member 405 at any time. By activating the modification means, of which one such example is by raising said member 405, an operator can disable the sensor at any time regardless whether reaching the end position or not, and then reposition said member 405.

Enabling simple and easy reposition of said member 405 is an important technique to make the presented invention practical. Clearly Soma's patent has used a different technique to handle this problem.

A modification means is not limited to simply lifting a member such as 405. Fig. 101 is another embodiment 651 of the presented invention based exactly on claim 12. As shown in Fig. 102:

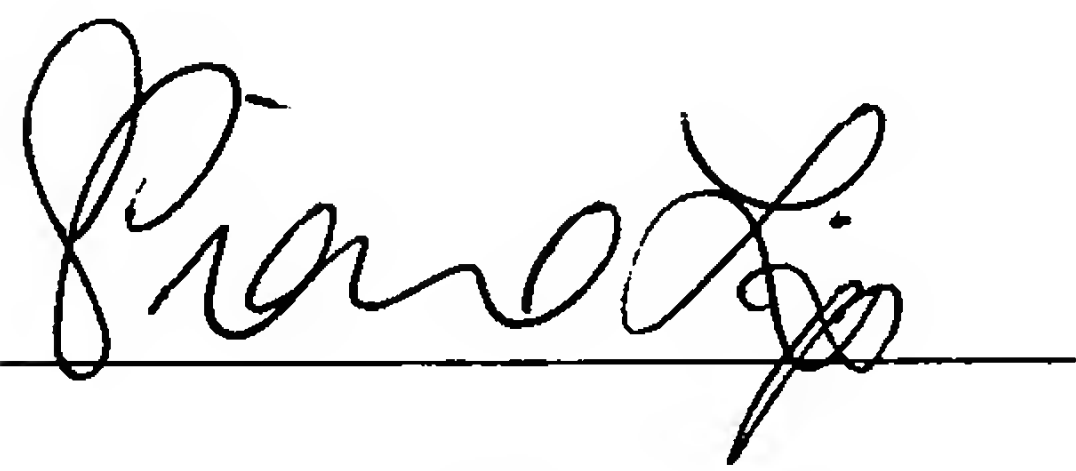
- a first member 658 movably in a first direction 657 relative to a reference base 653;

- a second member 652 and 654 movably in a second direction 656 relative a reference base 653, said second member 652 and 654 movable in said first direction 657 causing said first member 658 moving in said first direction 657 relative to a reference base 653;
- encoding means for sensing movements of said first member 658 relative to the reference base 653, and movements of said second member 652 and 654 relative to the reference base 653, thereby providing indicative signals to a host computer positional and directional information of said first 658 and second 652 and 654 members;
- communication means for transferring signals from said encoding means to a host computer;
- modification means, implemented by pressing a certain combination of buttons on member 652 and/or 653, for changing the functions the host computer performs based on the movements of said first 658 and second 654 members, including but not limit to changing the host computer to do nothing based on the movements of said first 658 and second 652 and 654 members;
- said first 657 and second 656 directions together covering a region in the Cartesian plane.

Embodiment 651 is made practical by claim 12. Without modification means as stated in claim 12, embodiment 651 wouldn't be practical.

As a conclusion, claim 12 is a superior and simpler design, and enables design such as embodiment 651 can be made. Claim 12 solves the problem of repositioning member 52 in Soma's patent, which makes an x-y position encoder much more practical. Claim 12 also innovatively identifies the need of modification means for an x-y position encoder, which allows a number of other embodiments such as embodiment 651 to be implemented practically.

Yours truly,



Lip, Chung Ching